

CLAIMS

1. A process for detecting antibiotics containing a  $\beta$ -lactam ring in a biological fluid, comprising the following steps
- 5 a) placing a determined volume of the said biological fluid in contact with an amount of recognition agent and incubating the mixture thus obtained under conditions which allow the complexation of the antibiotics, which may be present in the said
- 10 biological fluid, with the recognition agent,
- b) placing the mixture obtained in step a) in contact with at least one reference antibiotic immobilized on a support, under conditions which allow the complexation of the reference antibiotic with the
- 15 amount of recognition agent which has not reacted in step a), and
- c) determining the amount of recognition agent bound to the support,
- characterized in that the recognition agent comprises a
- 20 receptor which is sensitive to the antibiotics containing a  $\beta$ -lactam ring obtained from Bacillus licheniformis.
2. Process according to Claim 1, characterized in that the receptor which is sensitive to antibiotics containing a  $\beta$ -lactam ring is the BlaR receptor or the BlaR-CTD receptor.
- 25 3. Process according to Claim 1 or 2, characterized in that the receptor which is sensitive to antibiotics containing a  $\beta$ -lactam ring is coupled to
- 30 a labelling agent chosen from metallic colloidal particles, colloidal particles of selenium, carbon, sulphur or tellurium, and colloidal particles of coloured synthetic latices.
4. ~~Process~~ <sup>the process</sup> according to Claim 1 ~~or 2~~, ~~characterized in that~~ <sup>wherein</sup> the receptor which is sensitive to antibiotics containing a  $\beta$ -lactam ring is coupled to a labelling agent ~~chosen from~~ <sup>selected</sup> fluorescent substances.
- 35 5. ~~Process~~ <sup>the process</sup> according to Claim 1 ~~or 2~~, ~~characterized in that~~ <sup>wherein</sup> the receptor which is sensitive

A

B2A  
B2A  
m  
A m  
m

to antibiotics containing a  $\beta$ -lactam ring is coupled to a labelling agent <sup>from</sup> ~~chosen~~ from enzymes, such as alkaline phosphatase, peroxidases and  $\beta$ -lactamases.

6. ~~The process~~ <sup>wherein</sup> process according to Claim 5, characterized in that the receptor which is sensitive to antibiotics is coupled to the enzymatic labelling agent chemically or genetically.

7. ~~The process~~ <sup>claim 3</sup> process according to ~~any one of Claims 3 to 6,~~ characterized in that the receptor which is sensitive to antibiotics containing a  $\beta$ -lactam ring is coupled to the labelling agent before step a).

8. ~~The process~~ <sup>claim 3</sup> process according to ~~any one of Claims 3 to 6,~~ characterized in that the receptor which is sensitive to antibiotics containing a  $\beta$ -lactam ring is coupled to the labelling agent during or after step a).

9. ~~The process~~ <sup>claim 1</sup> process according to ~~any one of Claims 1 to 8,~~ characterized in that steps a) <sup>and</sup> or b) take place simultaneously.

10. ~~The process~~ <sup>claim 1</sup> process according to ~~any one of Claims 1 to 9,~~ characterized in that the support used in step b) is <sup>selected</sup> ~~chosen~~ from tubes, plates or rods coated with a reference antibiotic.

11. ~~The process~~ <sup>claim 1</sup> process according to ~~any one of Claims 1 to 9,~~ characterized in that the support used in step b) is a test device comprising a solid support (1) which has a first and second end, to which are attached, successively, starting from the first end,

✓ a membrane (2) for purifying the fluid analyzed,

✓ a membrane (3) on which one or several capture substances are immobilized, and

✓ an absorbing membrane (4).

12. ~~The process~~ <sup>claim 1</sup> process according to ~~any one of Claims 1 to 9,~~ characterized in that the support used in step b) consists of a set of magnetic or non-magnetic beads.

13. Test kit for detecting antibiotics in a biological fluid, by the process according to <sup>claim</sup> ~~any one of Claims 1 to 12,~~ comprising at least one recognition agent which is sensitive to antibiotics containing a  $\beta$ -lactam ring, obtained from Bacillus licheniformis, and

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